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ABSTRACT

Integrative education, although organized around curriculum, also unites people and activities. This monograph explores the integration of people, activities, and subject matter as seen through the eyes of those who support and implement the meaning and processes of integrative education. In chapter 1, scholars and trainers in and out of academia offer expertise and experiences gained from their scholarly pursuits and action research in schools around the country. Chapter 2 identifies leadership and administrative tasks necessary to encourage and support integrative education. Teachers excited about implementing integrative education share their experiences in chapter 3. Finally, chapter 4 presents implications of and possibilities for policy on integrative education. Findings are based on interviews with a total of 11 educators--teachers, principals, professors of education, and staff-development or curriculum coordinators. A bulletin-in-brief on integrative education is included. (Contains 31 references and 1 table.) (LMI)

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INTEGRATIVE EDUCATION

Empowering Students To Learn

Dean Walker

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Dean Walker

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Preface

We demand that schools turn out students who are physically, socially, and psychologically healthy, knowledgeable about the world and all its inhabitants, adept at numeric and verbal skills, and able to think creatively and critically. Our hope is that children will use all this knowledge, all these skills, and their healthy sense of self-efficacy to lead us into the twenty-first century.

The danger is that efforts to teach *everything* will sum to zero, or close to it. Students may gain a veneer of knowledge and skills too easily shed once past the standardized test. Students' ability to use skills or knowledge to actually accomplish a meaningful task may suffer from years of practicing the passive reception of knowledge. As students fail to see the relevance of teacher-driven education, alienation may worsen, with its attendant problems of tuning out, acting out, and dropping out.

Educators find themselves awash in a professional and popular culture of opposing currents. How and what should children be taught, how and who do we hold accountable for their learning? One current that seems to be gaining strength and support is a move toward integrative education. In this OSSC Bulletin, Dean Walker interviews experts, administrators, and teachers who are excited about their experiences with integrative education, and its potential to produce viable citizens for the twenty-first century.

Dean Walker is a Licensed Professional Counselor and a child development specialist in the Junction City School District. He is also a freelance writer and a parent of three children. Walker completed his master's degree in counseling psychology in 1984, and is now a Ph.D. candidate in the Division of Counseling Psychology at the University of Oregon.

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Introduction

If it proceeds to its logical conclusion, integrative education, though organized around the seed of curriculum, reaches beyond subject matter to the outermost structures of education. And it doesn't stop there. Just as a growing crystal incorporates into its structure whatever surrounding medium is available to it, a well-supported integrated curriculum involves the people and activities of the larger community.

Certainly, an integrated curriculum integrates subject matter. Reading, language arts, social studies, science, and math become focused and intertwined in the study of real-world phenomena. A new system of educational supports can evolve that provides the people committed to implementing an undiluted and potent integrated curriculum with what they need to make it work. When an integrated curriculum is supported by all stakeholders, an even greater level of integration is possible.

People are integrated. Barriers between traditional grade levels tend to dissolve as students are encouraged to cooperate and seek each other out as resources. Teachers become colearners with students as they dare to engage with their charges in student-led inquiry. Educational specialists are brought into the classroom as experts and facilitators. Community members also become resources, invited into the classroom to share experiences, or asked to provide opportunities for students to become immersed in learning outside the school walls.

Activities are integrated. Seatwork, whole-class instruction, and textbooks still hold value, but much more emphasis is given to activities that promote active inquiry and learning in the classroom and the community. Students survey other students, or interview people inside and outside the school who know about or are proficient at whatever it is they are interested in. Students become involved in tasks with real-world, and often personal, relevance, using mastered skills and gaining new ones at the same time. Technology is viewed as a means to access information, create products, and perform meaningful tasks.

This Bulletin explores the integration of people, activities, and subject matter as seen through the eyes of those who support and implement the meaning and processes of integrative education. In chapter 1, scholars and trainers in and out of academia offer expertise and experiences gained from their scholarly pursuits and action research in schools around the country. Chapter 2 identifies leadership and administrative tasks necessary to encourage and support integrative education. Teachers brimming with excitement about implementing integrative education share their experiences in chapter 3. Finally, chapter 4 presents implications of and possibilities for policy on integrative education.

Chapter 1

The Music of Integrative Education

> Deep down, we could never be sure if students learned because of our efforts, or despite them.
>
> —Robert Sylwester in *A Celebration of Neurons*

The real world is complex. Everything in it is connected to everything else. Integrative education is grounded in the complexities of the world, and the evolution of a brain designed to cope with such complexities.

Human beings use the innate pattern-detecting capacities of their minds, enhanced by learned skills like reading, writing, and mathematics, to actively construct working models of the world and share those models with others.

The brain evolved to negotiate the world. The more closely the brain mirrors the world, the more likely it is to survive and thrive. The brain is complex. It remembers things by connecting them to patterns it has constructed from previous perceptions of the environment. If enough things don't fit, the brain discards a pattern and creates a new one that will accommodate its perceptions and conceptions.

Brains—and the students who possess them—will try to make sense of the world with or without a teacher. This chapter's opening quote from Robert Sylwester provokes educators to consider whether current educational practices hinder or help the process. In a nutshell, integrative education facilitates learning through a process that moves from learner characteristics like developmental level, interests, and cultural embeddedness, to the world in which we find ourselves, then back to the student, who forms new concepts and questions, which initiate the acquisition of still more information and skills.

This Bulletin relies completely on interviews. A bibliography provided at the end of the Bulletin offers resources concerning the theories, models, and practices of integrative education that interested readers can explore.

This approach seems consistent with the integrative tradition. Rather than imparting specifics about models of curriculum, this chapter briefly ferrets out the patterns of integrative education as conceived by some education experts. This will provide a basic overview of the atmosphere and activities that tend to characterize integrative environments. Within this framework, readers can generate questions that are significant to them and then turn to specific resources for answers. Subsequent chapters of this Bulletin offer specific information about how administrators and teachers have responded to the challenges of integrative education.

A Perpendicular Change Curve

"The change curve in human civilization has gotten increasingly steep," said Bob Ritson, education program specialist at the Oregon Department of Education. "Today, it's approaching perpendicular."

An effective education must respond to the changes that have occurred in our culture. The Big Bang of information that has exploded into an ever expanding universe of facts, figures, and artifacts makes it impossible to teach students about even a fraction of the information that exists. Should students study William Shakespeare or Eldridge Cleaver? Who decides? How is it taught?

The struggle to keep curriculum current is an ongoing process. "Ten years ago there was a six-year cycle for curriculum," said Ritson. "We no longer have that luxury. Now, curriculum revision is a dynamic, continuous process." Many integrative-education experts believe that curriculur change should be guided by the characteristics and needs of students. Process becomes paramount as a consistent, underlying pattern that can accommodate rapid changes and help children respond thoughtfully, creatively, and critically to content of all kinds.

These processes include:

- accessing information
- synthesizing it into a meaningful, useful pattern leading to valid predictions or solutions to problems
- effectively presenting these syntheses to others so as to excite, inspire, convince, or motivate
- working with others to facilitate all the other processes

The Guide by the Side

"The Internet will revolutionize education," said Sylvia Chard, professor of elementary education at the University of Alberta in Canada. It is a product and a producer of the perpendicular change curve. Yet a traditional classroom, with the teacher in the role of "sage on the stage," will find it difficult to effectively incorporate the Internet. Control of experience shifts from teacher to student as both access the Internet, requiring teachers to become the "guide by the side." Teachers who provide an integrative education strive to move into this new role.

"The average age of teachers in Oregon is about forty-one," Ritson said. "With fifteen to twenty years of experience under their belts, having to significantly change the way they teach is a sizable undertaking." Parents also frequently support maintaining the status quo rather than endorsing innovation.

"We are programmed to repeat ourselves," said Chard. Many parents' view of what education should be is rooted strongly in their own school experience. If they can't understand an educational approach on those terms, they may shy away from it. It may be difficult for parents to go into a classroom in which the teacher isn't always front and center and believe that learning is occurring. So, the popular culture and the culture of education have to evolve together to be willing to consider more effective practices.

Psychobiologists believe that repetition of what has been successful in the past is a behavior that has contributed to the survival of the human species for thousands of years. Many wonder, given the human creation of a culture with a perpendicular change curve, whether repetition of ingrained responses now might take us off an evolutionary cliff.

Integrative educators are attempting to change their teaching strategies and empower students to learn rather than overpower students with information and authority. Bringing parents along in the process requires the same sort of leadership. Integrative teachers are learning how to *facilitate*.

Facilitation

Catch students asking a question.

Where did words come from?

Find out what they know, what information pushed that question to the surface.

We use words all the time. They just seem to pop out of our mouths and most people understand what we mean. There are lots of different languages, but it seems like people can learn any one of them if they try hard

enough. Words have been around a long time. People can write words, or speak them, or sign them, or sing them.

Help them direct, narrow, or even expand the question. What exactly do they want to know? What might it be useful to know, and why? What are the ways of knowing about it?

How many languages are there, and who speaks them?

When and where did people start writing words down?

What did they write with? What on? What did they write about?

Where do new words come from?

Teach students how to access information.

Interview an expert, an entomologist. Complete a survey—how many languages are spoken in your school? Get a book from the library. Scan the periodicals and journals. Navigate the Internet. Examine your experience and write a poem. Listen to lectures.

Show students how to share their information with others and apply it usefully.

Write a clear paragraph. Use your computer for a multimedia presentation. Chart a graph. Make a scale model. Deliver an exciting speech. Perform.

Facilitation includes all the things that teachers have done before, including systematic whole-class instruction. It also involves helping open up a much broader range of resources and educational experiences to students, parents, and themselves.

The Transfer of Skills

If they are going to become competent learners, students need to have the ability to transfer to other situations the skills gained in going through the process described in the preceding section. If teachers are always responsible for making connections among various strands of information, students will become accustomed to accepting integrated information but may not become skilled at integrating information themselves. An effective education requires that students learn to engage in the process of actively seeking patterns in a novel environment.

"The human brain is naturally good at finding patterns," said Robert Sylwester, professor of education at the University of Oregon and author of *A Celebration of Neurons.* "The brain takes a whole bunch of data and boils it down to an action plan. Anything in school that helps a brain develop that ability and apply it to any number of situations is good." Sylwester and other experts suggest that as they attempt to cultivate in students the ability to transfer skills, basic emotional needs of students must be taken into account.

Safety, Significance, and Common Sense

Sylwester believes educators need to submit their practices to a "brain compatibility" test. Most cognitive neuroscientists today believe the evolution of the human brain provides important clues about its nature and purpose, and therefore about the ways in which human beings learn best. Sylwester said, "Teachers have to ask themselves whether or not their practices work with the strength of the brain or against it."

The basic premise of evolutionary psychobiology is that the complex human brain, just like other human characteristics such as upright posture and the opposable thumb, developed and was perpetuated because it provided an advantage to survival of the species. Therefore, the brain's primary function is to attend, evaluate, and react to the environment so as to sustain life. Attention and evaluation are affected first by the presence or absence of threat, then, in the absence of threat, by whether or not something in the environment has some level of relevance for an individual.

In other words, think *safety* and *significance*. Safety and significance are crucial to education. School practices that enhance students' feelings of physical and psychological safety foster complex learning, rather than basic "flight or fight" decisions in lower brain centers. Information and skills that have become significant to students, either naturally or because a teacher understands how to make them significant, will be learned with zest and ease. The student integrates these in relatively permanent ways into their model of the world, because that model itself is intensely personal and significant.

Sylwester suggests that teachers who try out new practices for brain compatibility solicit direct feedback from students. Students who are bored, or who are being forced to work against the "brain grain" are likely to misbehave. Cooperative learning passes the brain compatibility test since it capitalizes on the fact that humans are a *social* species.

Sylwester also notes that portfolio assessment passes the brain compatibility test. "Ultimately, the most significant measure of achievement is how you define yourself reflexively," he said, "not how someone else grades you."

Without referring to the brain, but along the same line of thinking, Chard said she has found that students who are bored underachieve. "No amount of testing raises standards," she said. "Project work based on children's interests and authentic assessment does raise standards."

Without the intrinsic emotional rewards offered by school work with significance in an atmosphere of safety, and without an opportunity to self-reflect, students lose motivation, become passive and outer-directed. Teachers, in turn, spend a lot of time supplying external motivators and constraints.

These rewards or threats of punishment or embarassment diminish a student's sense of safety, and learning may subsequently become focused on manipulating the system to create the safest, easiest school environment.

Finally, Sylwester advises educators to use common sense in developing curricula. "Look around and figure out what kids can get on their own, and what things will be difficult for them to catch on to," Sylwester said. "Work from their strengths. See what it is that people need to know to function well in the culture. Teach those things in ways and at times that are significant to the child."

Location, Location, Location

As with real estate, location can increase the value of integrative education. Significance must be experienced emotionally by a student. An authentic integrative education, therefore, has to be developmentally appropriate, based on the individual and cultural characteristics of the students.

"It's not the exotic that so interests students," said Chard. "Fairy stories, rainforests—what do those have to do with the life of a child?" Children want to know about the details of their daily lives. Where does food come from? How does it get into stores and restaurants? As they grow older, rainforests may become truly significant to students, but Chard advises teachers, "Do the local stuff." Even older students are likely to be more interested in how to earn money, what happened to their emotions and bodies when they hit adolescence, or the who, how, and why of rule-making in their own school or city.

"Open a restaurant in a grade school," Chard suggested, "and have a parent who waits tables show the class how to do that job." Writing, math, and social skills are but a few of the skills that are integrated. And parent involvement is another major benefit of such a project. School/community partnerships can and do arise from such projects, increasing the moral support of the community for the school, as well as support in the form of money and materials. Cultural diversity is honored, which also validates students and increases self-esteem and community pride.

Integrative education exposes schools to all sorts of beneficial changes. But when the eggs of a traditional discipline-based education have been so long treasured and protected, asking the school system to break them in order to serve up the omelet of integrative education is a serious challenge. On the one hand, changes in our culture seem to have overwhelmed us with their speed. On the other, the culture of education seems mired in the rote and the repetitive. The following chapters describe how some administrators and teachers are changing their classrooms and systems to accommodate the new fare.

Chapter 2

Leading the Dance

> Integrative education will look different at every school. It emerges very much out of the energy and expertise of the people involved.
>
> —Jane Stickney, curriculum director
> West Linn-Wilsonville School District

As June Stickney's quote emphasizes, while the tune of integrative education may be familiar, the details of every school's daily dance will be different. Similar processes of integrative education may give rise to strikingly dissimilar curriculum. When all goes well, this is how it should be.

This chapter identifies some common chords that emerge among district and building administrators in schools and communities that are committed to providing an integrative education. It addresses the question How can administrators support integrative education?

Top Down and Bottom Up

Educational culture is maintained by norms that are consciously or unconsciously ensconced at a number of levels. Resistance to change can stem from community patrons who are unbending in their conception of education. Mark Boyer, professional development coordinator for the Scottsdale School District in Arizona, said, "In my conversations with educators across the country, it is a consistent theme that one of the major impediments to integrative education is that it requires classrooms to be very different from the ones parents grew up in."

Inertia or resistance can also come from the top of the educational hierarchy, as when the central office refuses to allow a school or teacher to experiment or depart from past practices. Resistance to integrative education

might also emanate from teachers or building administrators.

Pressure to implement integrative education can be exerted from various levels. Teachers may push against administrators for latitude to try integrative practices. Administrators may try to pull reluctant teachers in an integrative direction.

School systems do not consist only of a vertical hierarchy, however. They are also circular. District patrons, who might be considered the anchor at the bottom of the educational hierarchy, also elect school boards and legislators who presumably share their views and express pressure or resistance to change from the top of the hierarchy. It is important for change proponents to understand the political realities of instituting integrative practices. The patrons are the ultimate arbiters of change.

The move toward integrative practices can be initiated at any level, or quashed at any level, either directly or by foot-dragging or sabotage. Nevertheless, without at least passive administrative support at the district and building level, integrative education is unlikely to be instituted. The ideal is for district and building administrators to be active and visionary in pulling the other arcs of the circle of educational culture toward integrative practices. In the dance of implementing integrative education, administrators must take the responsibility of being the leading partner.

Take It from the Top

Administrators looking for ways to dialogue with teachers about the benefits of integrative practices might get help at the state level, where decisions are made about what students will learn and how they will be assessed to make districts accountable. Oregon has set up a certification system to accompany its high school diploma, which requires that certificate recipients demonstrate their ability to use skills and understand processes in an open-ended assessment.

According to Bob Ritson, education program specialist at the Oregon Department of Education, the original benchmarks for initial certification have been changed to reflect content within subject areas rather than processes that integrate content. Nevertheless, Ritson said that in Oregon students are also taught to know how to use math, science, health, technology, and language arts in a broad chosen career path. This increases the likelihood that teachers may gear their instruction toward more integrative methods.

Kathleen Glaser, principal of Maryland's Hollywood Elementary, said that her state has moved its evaluation methods in third, fifth, and eighth grades to assessment through performance-oriented tasks, all of which

integrate reading, writing, and math skills. She said, "This gave me a way to talk to teachers about the importance and sensibility of integration, and provided teachers the opportunity to dialogue about integrative education as a way to appropriately prepare students."

Bottoms Up

Linking teaching practices to an "external" standard of evaluation mandated by the state might be for naught, however, if parents believe the standards don't make sense, and they decide to throw the standard-setting "scoundrels" out of the legislature. Integrative practices would then be linked with a negative impression of statewide standards and political values rather than being a clear and sensible means to a positive end.

Boyer said that his community has extremely high expectations for its students. But, he said,

> We have to understand that while the subject-discipline expert may list 100 things that it is important to know to have mastered a subject area, students really will be better off if they only learn 60 or 70 of those in the process of investigating a topic because they will be learning these things in depth, in ways that will transfer to their lives outside school, rather than skimming the surface and memorizing all 100 things in a superficial way. If we can show parents the truth of this by helping students create products that are meaningful to them, they will begin to let go of some of their content expectations.

Like Boyer, Sylvia Chard believes children ultimately are the best promoters of integrative education. "Parents are amazed at how keen their children get. Getting parents on board is no problem when they discover they have kids who love to go to school, to ask questions, to learn."

In addition to seeing children who are excited about being at school, both teachers and parents need to see other direct benefits from integrative education. If teachers get excited about integrative education and implement it effectively, then they willingly become the major force in showing parents how an integrative education makes more sense for their children.

Glaser said, "We expect parent/teacher conversations about why school doesn't look like it did when they were children, why that's a good thing. Kindergarten teachers begin the conversation with parents about our educational philosophy. Periodically we need another parent/teacher discussion to address concerns—it's an ongoing process."

Parents who have gone through the integrative educational experience with their children can be recruited to help the school explain its approach naturally, through their informal conversations with other parents in the

community, and by talking formally to other parents in the school.

Glaser said, "Involvement of community members has brought the school moral support for its integrative approach. It has also brought material support, like lumber from a local home-improvement store for the school's building projects."

Leading the Community

There are a number of ways administrators can affect community perceptions about integrative education. Mark Boyer described the Scottsdale School District's community-education projects:

> Each year we offer programs for parents so they can understand what we are doing in our district. These are taught by a mix of classroom teachers and national experts. We answer questions experientially, questions like, What is curriculum? What is effective, what's not, and why? What is the appropriate aim of education in today's world? By answering these questions we can show parents why it is necessary to give today's students an educational experience that may be very different from theirs.

Boyer described how his district attempted to disseminate information about integrative education:

> We had mixed success in getting people out to meetings, so we videotaped our programs and broadcast each of them about fifteen times on the community-access cable channel. Many people do eventually see the tape. Unfortunately, they miss the experiential part, and they don't get the handouts. But we have a rep from each school attend and ask them to distribute handouts and materials to parents who want them.

Boyer characterized his district's process of guiding change, including the move to integrative practices, as a "force field analysis." A group of teachers, administrators, and parents gather in a facilitated meeting. "We ask ourselves what direction we want to be going," said Boyer. "What are the things in our favor, what are the obstacles? We look at each obstacle and brainstorm how to deal with it. This lets us know where the 'hits' are before we come out with an actual plan."

Having parents play an important role in these analyses makes a major difference in the community's receptivity toward change. "It helps people act, rather than react," said Boyer.

Jane Stickney noted that she and her colleagues at Willamette Primary faced "some resistance from patrons at first, based on misperceptions. We had twenty meetings over the spring and summer, and invited parents into the

conversation about the kind of school we envisioned for children."

At Laurel Elementary School in Junction City, Oregon, Principal John Davies and the site council mandated three-way conferences. In the three-way conference, student, teacher, and parents collaborate in reviewing student progress and setting educational goals. This provides an excellent setting within which parents can more easily recognize their child's progress by looking at their child's work products.

One parent at Laurel said, "I was amazed that my first-grader could write stories and actually read them. It just looked like a bunch of letters to me, but Justin could decode it with no problem." This kind of interactive assessment helped parents see the benefits of the teacher's practice of integrative education and better understand the assessment processes that support it.

Leading the School

Administrators certainly can't afford to neglect parents, but they must also attend to the more immediate school culture. And when teachers are encouraged and empowered to implement effective integrative practices, parents will be influenced indirectly by the effects on their children and on the nature of the parent/teacher interaction.

Glaser talks about her role as a principal in helping teachers implement integrative education. "The principal needs a clearly evolving vision to continually draw teachers into the dialogue about integrative education and ensure they don't lose sight of goals because they are bogged down in the daily fray of teaching and managing children," said Glaser. "Still, my teachers have been key decision-makers."

Similarly, Glaser respects her teachers' level of practice while expecting movement toward a vision of integrative education. For example, Glaser wanted to move her staff and students to a multiage model because of her belief that such grouping would support integrative education. However, teachers were reluctant to make such a radical change. She respected where the teachers were, but because of her commitment and vision, the teachers suggested they start with multiage grouping one day a week. Multiage groups are now common at Hollywood Elementary, and Glaser holds fast to the vision of a multiage experience for all the primary children at her school.

In another equally important round of "leading the dance" with a different partner in her Maryland school district, Glaser and her team of staff made a presentation to the local board of education to garner support for practices that facilitate integrative education. They used the National School Boards Association recommendation of school/community partnerships and

of a K-3 primary unit to organize their presentation. Glaser talked about multiage, thematic work that would engage the community and provide student choice in terms of the NSBA recommendations. The board was supportive and encouraged the team to continue.

Glaser's work bore fruit. "The support of the central office in allowing us to develop and pilot a new report card directly enabled us to look at the continuous progress of children on a continuum of skills rather than compartmentalizing them as good, average, or unsatisfactory students."

Choosing the right partner can make all the difference in dancing and in education. Stickney talks about hiring teachers who recognize the value of integrative practices. "I look for teachers willing to make a commitment to life-long learning, ready to go on a great adventure with their colleagues."

But most schools don't have the luxury of starting out with a staff "gung ho" on integrative education. At the ten research schools that work with Sylvia Chard, the school policy is that integrative project work will be the thrust of education. In one of the schools it was even suggested that staff who object to that should move toward another position or toward retirement.

That approach worked for John Kriekard, principal of Chaparral High School in Arizona, when he was principal at a Scottsdale middle school. When he became principal at Chaparral, however, he found the situation with an established staff to be quite different. "You don't try to change the world overnight," said Kriekard. "I look for teachers who want to do new things and I ensure their success. I bring along as many as possible."

Kriekard established an Innovative Teaching Practices committee. The committee meets on its own to plan new activities, and Kriekard meets with them to encourage and support them.

Kriekard also ensures that dialogue at Chaparral High about integrative teaching practices is ongoing and inclusive. As a first step, he asks departmental teachers to decide what a student will be like after four years in their department. Then he asks them to consider how their expectations relate to the expectations in other departments. Kriekard challenges them: "Can we schedule kids into American Literature and American History so they are studying things within the same context?"

"Districts in Oregon seem to go one of two ways with getting teachers to implement integrative education," said Bob Ritson. "Some decide to bite the bullet and say, we *will* be moving to an integrative model, and some allow teachers to choose whether or not to come along." Either way, inservice for teachers takes on heightened importance.

Learning the Steps

Boyer and his colleagues in the Scottsdale district have sharply focused ideas about what teachers need to learn through inservice. "Teachers need to learn how to work as a team, how to improve their instruction, how to use action research to be self-evaluative. They need to know how to engage in a collaborative process for promoting growth."

The Scottsdale district doesn't wait until they have hired a teacher to begin training them to be effective integrative educators. The district has created a professional development center for student teachers. The center invites new teachers in for training. This ensures that the district can hire new teachers who are already coming up to speed on integrative education.

Once hired, teachers in Scottsdale enter a three-year program for newly hired teachers. Each works under the guidance of two mentors, one a generalist and the other a subject-area specialist. Said Boyer, "A lot of good and bad habits are developed in the first three years of teaching."

In an affirmation of lifelong learning, tenured teachers have easy access to continuing education. In conjunction with the local university, the district created its own master's program for district teachers. Said Boyer, "The program is structured around the district strategic plan, so that teachers can get their master's while they are working to further district goals on their jobs. They are then expected to become instructors and facilitators for other staff."

Finally, the Scottsdale district has for some years hosted a national conference on curriculum integration. This year, the district had 900 educators from the United States and Canada come to its conference, at which 85 presenters in four days addressed such topics as multiage grouping, brain theory and research, portfolio assessment, cooperative learning, "theme teams," and student-centered curriculum planning.

A different approach to teacher training is exemplified by the Eugene Public Schools. "The district is extremely decentralized in terms of control," said Bill Kentta, a curriculum coordinator in the district. "The central office makes it known that teachers who want help moving toward integrative education can get district support, while teachers who aren't developing integrative methods, or are moving in an entirely different direction from that which is supported by our research, will find themselves on their own."

Eugene Public Schools specialists will make presentations on integrative methods at the request of schools. "We also fund teachers to develop integrated units and programs consistent with the recommendations of the research we have done," said Kentta. "We provide a workshop, and if teachers come, they get the curriculum unit to use. Slowly but surely we are bringing people on board with this process."

The district also has offered a summer institute for the past six or seven years. A World Wide Web page with support materials for integrated units that teachers can tap into, both locally and internationally, has been set up by district leaders. One of the informational selections on the Web site is integrative education, which explains the integrative model used in Eugene.

Kentta expressed some discomfort with the scatter-shot approach to promoting integrative practices in his district. "It may be time for the pendulum to swing a little more toward the middle in terms of enabling the central office to pull teachers as a unit toward the integrative methods that are emerging as best practices."

Dancing Lessons

Leadership is not an inborn capacity. With administrators needing to be effective in leading all stakeholders in education toward integrative practices, it stands to reason that leadership training is vital. In an acknowledgment that collaboration is as important for administrators as it is for teachers, the Scottsdale district has created a leadership design team to nurture strong leadership in the district. Mostly administrators participate, but it is open to all staff. "Administrators regularly meet with each other to talk about leadership in the district," said Boyer, "and how to create real results in the strategic plan. They share specific actions they are taking to forward the plan, so that others can support them and build on their successes."

Scottsdale has an administrative mentor program so that administrators who have not been in the district previously are educated about the expectations of the district and the history and direction of the district. "The district also has created a distinction in its administrators' evaluation instrument between management and leadership, because these are two different ball games," said Boyer. Administrators need to commit to leadership goals that support the district's strategic plan, which includes the implementation of integrative education.

Supporting Changes in Specific Practices

Administrators must help put in place and support the framework that teachers and students will need to successfully implement and deeply experience integrative education. This means taking on some of the "sacred cows" of education. Boyer's comments about the need for teacher time to collaborate are indicative of the tensions that surround restructuring. He takes on the popular notion, fueled by the media, that students are not being taught enough.

BULLETIN IN BRIEF

OREGON SCHOOL STUDY COUNCIL

Condensed from OSSC Bulletin

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Integrative Education

By Dean Walker

> Deep down, we could never be sure if students learned because of our efforts, or despite them.
>
> —Robert Sylwester in *A Celebration of Neurons*

The real world is complex. Everything in it is connected to everything else. Integrative education is grounded in the complexities of the world, and the evolution of a brain designed to cope with such complexities.

Human beings use the innate pattern-detecting capacities of their brains, enhanced by learned skills liked reading, writing, and mathematics, to actively construct working models of the world and share those models with others. Integrative education attempts to capitalize on the characteristics of the world and the capacities of the brain.

The Music of Integrative Education

Brains—and the students who possess them—will proced to try to make sense of the world with or without a teacher. The opening quote from Robert Sylwester provokes educators to consider whether current educational practices hinder or help the process. In a nutshell, integrative education facilitates learning through a process that moves from learner characteristics like developmental level, interests, and cultural embeddedness, to the world in which we find ourselves, then back to student, who forms new concepts and questions, which initiate the acquisition of still more information and skills.

The Oregon School Study Council—an organization of member school districts in the state—is a service of the College of Education, University of Oregon.

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A Perpendicular Change Curve

"The change curve in human civilization has gotten increasingly steep," said Bob Ritson, education program specialist at the Oregon Department of Education. "Today, it's approaching perpendicular."

The struggle to keep curriculum current is now ongoing. Process becomes paramount as a consistent, underlying pattern that can accommodate rapid changes and help children respond thoughtfully, creatively, and critically to content of all kinds. These processes include:

- accessing information
- synthesizing it into a meaningful, useful pattern leading to valid predictions or solutions of problems
- effectively presenting these syntheses to others so as to excite, inspire, convince, or motivate
- working with others to facilitate all the other processes.

Safety, Significance, and Common Sense

The basic premise of evolutionary psychobiology is that the complex human brain, just like

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other human characteristics like upright posture and the opposable thumb, developed and was perpetuated because it provided an advantage to survival of the species. Therefore, the brain's primary function is to attend, evaluate, and react to the environment so as to sustain life. Attention and evaluation are affected first by the presence or absence of threat, then, in the absence of threat, by whether or not something in the environment has some level of relevance for an individual.

In other words, think *safety* and *significance*. Safety and significance are crucial to education. School practices that enhance students' feelings of physical and psychological safety foster complex learning, rather than basic "flight or fight" decisions in lower brain centers. Information and skills that have become significant to students, either naturally or because a teacher understands how to make them significant, will be learned with zest and ease. The student integrates these in relatively permanent ways into their model of the world, because that model itself is intensely personal and significant.

Leading the Dance

"Integrative education will look different at every school. It emerges very much out of the energy and expertise of the people involved," said Jane Stickney, curriculum director at West Linn-Wilsonville School District.

While the tune of integrative education may be familiar, the details of every school's daily dance will be different. Similar processes of integrative education may give rise to strikingly dissimilar curriculum. When all goes well, this is how it should be.

Top Down and Bottom Up

The move toward integrative practices can be initiated at any level, or quashed at any level, either directly or by foot-dragging or sabotage. Nevertheless, without at least passive administrative support at the district and building level, integrative education is unlikely to be instituted. The ideal is for district and building administrators to be active and visionary in pulling the other arcs of the circle of educational culture toward integrative practices. In the dance of implementing integrative education, administrators must take the responsibility of being the leading partner.

Willing Partners

Lynda Hardwick and many of the other teachers at Laurel Elementary in Junction City, Oregon use a project approach to learning, as promoted by Lilian Katz and Sylvia Chard (1989). While systematic whole-class instruction is still important, it supports the progression of learning and the application and development of skills through projects, rather than being the sole vehicle for information.

Hardwick guides student learning through three phases. In the first phase of inquiry, students and teachers collaborate in what Chard calls an "autoethnography." Hardwick presents no new information, instead trying to draw from students everything they know, or think they know, about the topic. A teacher with more traditional ideas about teaching might rush through this first phase, thinking that the real job of education begins only when the teacher brings in new information.

Not so for Hardwick. "The things you find out about how your students think are just amazing when you give this phase time to really develop. You get a greatly enhanced understanding of the students' world view, and this makes all the difference in meeting them with developmentally appropriate practices." Another benefit is that students must actively struggle to develop their own understanding rather than passively relying on a teacher to tell them "the way things really are."

Phase two of Hardwick's process is the active research phase. The resources available to Hardwick and her classroom are only as limited as her imagination. There's the traditional classroom fare of books and films. Then there are field trips on which students actively gather information. In addition to being led on a traditional school tour of a pet shop, for example, students might interview the shop owner and gather data about the number and kinds of pets at the store and the nature of the rest of the store merchandise. Both in the classroom and in the school at large, students might complete surveys about pet ownership. Guest speakers come into the classroom to talk about their experience and answer students' questions.

Finally, in the third phase, students synthesize

their experiences in writing, drawings, graphs, and other creations. They draw conclusions from their data, and share these with other students in their own and other classrooms. Usually, there is a culminating event, in which parents, staff, and students join to celebrate the fruits of the students' research and activities.

A Philosophy of Care

Gladstone High's Bill Stewart and Nancy Wilson collaborate with each other in their quest for integrative practices. He teaches science and she English. "We work on the Random Weave Model," said Stewart. "Certain things we can work together and reinforce each other on, and other things seem mutually exclusive. Biochemistry, for example, doesn't seem to cross over with English."

Stewart and Wilson teach the same group of sixty students during first period. One day thirty of the students will have English with Wilson during first period and the next day those students will have science with Stewart, and vice versa for the other thirty. Students stay in this alternate day science/English pattern unless all sixty students gather together in the auditorium.

Science and English seem to deal with such disparate subject matter. How do the two teachers bring them together? When all sixty students gather in the auditorium, what could they possibly do that would pertain to both disciplines?

Stewart provided an example: "When I'm teaching extinction and adaptation in science, Nancy will be using *Jurassic Park* as her class literature. We manage to find lots of places where we can complement each other. It's important to know reading and language skills in science and vice versa."

Stewart credits Wilson with coming up with the phrase "a philosophy of care" as descriptive of one of the most important aspects of their collaboration. It seems to make a big difference to students, who often return to their integrative class as volunteer aides. "We are with the kids for a whole year, so we really get to know them, their interests, and their capabilities," Stewart said. "We have time to do some things with them that we otherwise wouldn't. Nancy and I reinforce each other with the kids. We're consistent in wanting academic standards and also wanting the student to be a good person and act reasonably."

Flying the Coop on Eagle's Wing

Brett Loucks is a science teacher too, but one whose desire for "something more" led him to leave the confines of the traditional high school and become involved in an alternative setting that offers students a very different educational structure.

Eagle's Wing was formed by a group of educators, whom Loucks joined for early morning meetings to conceive a radically different school. The push to restructure education in the state of Washington enabled Eagle's Wing to be declared a "lab" school that qualified for waivers from the state, freeing teachers at the school from "seat time" requirements. The principal endorsed the Eagle's Wing concept and Loucks and company got the support of a majority of other teachers to open their alternative at Hudson's Bay High.

There are three arenas at Eagle's Wing in which students can seek the information they need to complete projects that are meaningful to them.

First, there are the "hubs," two integrated cores of study, one in English, social studies, and the humanities, and the other in science, math, and health. Even in the hubs, learning is tied as much as possible to student projects. And there is considerable integration between as well as within hubs. "We do a lot of science in the humanities," said Loucks. "When students are defending projects that might be focused on social studies, for example, we want to know if they can support their claims statistically. What was their sample size? Did they use the chi square, or what other statistical test, and why?"

Second, teachers, and sometimes students, offer seminars on topics requested by students. "Navigating the Internet" or "writing" are examples of student seminar requests.

Finally, skill-building workshops are offered—one shot, limited affairs that teach things like how to develop black-and-white film. Students must demonstrate that the skill will be used within the context of their projects. Loucks notes that students also do a lot of off-campus learning by volunteering, performing public service, and participating in job shadowing opportunities. For attending hub classes, seminars, and workshops,

students earn coupons that can be exchanged for credit after their project has been successfully completed and "defended."

Policy Implications

District administrators who wish to write policy concerning integrative education will truly be leaders. The National School Boards Association offers no samples of policy on integrative education or integrated curriculum. The American Association of School Administrators has adopted no position statement on the matter. The National Association of Secondary School Principals and the National Association of Elementary School Principals remain neutral on the topic, as does the Confederation of Oregon School Administrators. Even the National Education Association has no formal position in regard to integrative education.

Some school districts in the nation have become leaders in integrative education policy. The Scottsdale School District in Arizona includes integrative education practices in its strategic plan, as follows.

> **OBJECTIVE 8.** By June 1996, all teachers and students will be engaged in meaningful integrated instructional processes which model and facilitate the District mission and strategic plan.
>
> **Strategy 8.1.** We will establish the guidelines and definitions for meaningful and integrated instructional approaches.
>
> **Strategy 8.2.** We will establish a professional development plan and evaluation procedures which will ensure all staff will have mastered the elements of Objective #8.
>
> **Strategy 8.3.** We will include elements of the Strategic Plan, including evidence of student progress and meaningful curriculum integration, in the certificated evaluation process. (Scottsdale Public Schools 1995)

Undoubtedly other districts in America have already adopted policies concerning integrative education. Such policies will certainly evolve and be revised as states make decisions about student evaluation and as district leaders experiment with policy and its effects on teacher practice. It is probably unwise to allow uncertainty to prevent the development of school policy about the matter. Policy-makers might do well to follow the lead of teacher Lynda Hardwick, who possesses a willingness to risk coupled with a humble openness to experience. *We've got so much to learn.*

Conclusion

People like those featured in this Bulletin are making contributions to the theory and practice of integrative education. Supported by the pure research of cognitive neuroscience and the action research of teachers and administrators, integrative educators are moving ahead in spite of formidable cultural inertia. Perhaps this is because of the promise that integrative education holds for all.

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> Some have concerns that students are not being taught the skills they need, but frankly, I think we're doing more teaching in some areas than many kids will ever need. These kids usually know when knowledge is important or transferable to their lives. When they have to spend a major portion of the school day involved in activities they view as meaningless, this leads to alienation and apathy. As long as we pay homage to the "sacred cows" of education, time for teacher collaboration will be a commodity that will be difficult to come by. Everyone must come to realize the value of the time teachers spend talking about their practice. This, rather than spending more time doing the same thing we've always done with the students, will make education better.

In addition to addressing the issue of teacher collaboration, administrators are leading teachers into new structures for student grouping, more authentic assessment processes, creative scheduling in middle and high school, and even new and more enabling physical structures.

It Takes at Least Two to Tango

Administrators are encouraging—even requiring—teachers to collaborate and plan in teams. Bill Stewart, a science teacher who collaborates with English teacher Nancy Wilson, wouldn't have it any other way. "I am willing to try some things I wouldn't have otherwise because I know I've got someone there to support me," said Stewart, who teaches at Gladstone High School in Portland. "Because we are trying new things together, I tend to get out of my classroom more, to go to more conferences."

Jane Stickney encourages "natural collaborations" to develop within her staff. Generally, this means that teams of two or three teachers with an affinity for specific issues work together on limited projects. Pairings or teams tend to be temporary and multiple, centered on a common interest.

As Boyer has pointed out, finding time for team planning is an ongoing challenge. John Kriekard knew that the teachers at the middle school where he began his tenure as principal needed interdisciplinary planning time as well as individual planning time. More than five planning periods a week were therefore necessary. Kriekard began by using some administrator time to free up planning time for teachers. Students within one "house" would take two electives, one taught by teachers in that house, and another taught by a team outside the house. One day a week, Kriekard and the assistant principal ran the study hall for students in those electives, freeing team members up for interdisciplinary planning.

In a process that took four years, Kriekard moved from this kind of

creative scheduling and personal involvement in monitoring students to finally convincing the district to hire more staff so that each interdisciplinary team would have two planning periods. Team planning is mandatory during the second planning time.

Kriekard and his colleagues in the Scottsdale district were also able to convince the community that planning time was valuable enough to justify an early release on the first Wednesday of each month. To make the release time less onerous for working parents, the administrators worked with the local parks and recreation department to create recreational opportunities for students during that time.

Grouping Students

Integrative education requires the safety of long-term relationships, allowance for continuous progress, and flexibility of student and teacher choice. Stickney and her colleagues "came to believe that grouping by age or skill was not the key, rather, it was important to build long-term relationships and access to a diversity of children."

Stickney's school, Willamette Primary, grouped kindergarten and grade 1, grades 2 and 3, and grades 4 and 5. "Right away we saw that pull-out programs were inappropriate," said Stickney. "Specialists are in the classroom working to support what is going on with all children."

Glaser, principal of Hollywood Elementary, said, "Multiage allows students to have a meaningful structure and a group in which to progress along their continuum. It enables negotiations between students and teachers about reasonable goals and the kinds of activities the student milieu will support. For example, a third grader might elect to team with a fourth-grader whose interests come together in a project, whether or not their skill levels are the same."

Schedules

Education shouldn't need to fit itself into a school schedule that is fixed around arbitrary divisions of time. Rather, schedules must facilitate integrative-education practices.

As an elementary school principal, Jane Stickney learned to "interrupt the students as little as possible. Limit unrelated assemblies," she said "Encourage teachers to tie holidays to learning rather than have meaningless activities."

Scheduling at middle and high schools requires more flexibility and creative thinking, and willingness to slay the sacred cow of the fifty-minute

period. Kriekard is working to increase student and teacher flexibility at Chaparral High through "block" scheduling, in which two or more subjects are taught back to back or even within the same time by one or more teachers. Kriekard warns, "You have to ensure that scheduling blocks doesn't have adverse affects on other teachers, like increasing class loads."

Blocks can begin with things that are clearly related. For example, Kriekard scheduled a two-hour arts and humanities block taught by a team of two teachers, and a government and economics block taught by one teacher. But sometimes integration happens among areas that may not seem to have much in common. Such "natural" collaboration arises out of mutual interests among teachers in very different disciplines. The Chaparral schedule includes a block for the Theater Corporation, in which the drama and business teachers have teamed up to teach students about money, marketing, and production by running a theater company.

Assessment

When educators implement integrative-education practices, they begin to rethink assessment. "When teachers start using integrated units," said Principal Kriekard, "it forces the issue on assessment." Realizing they needed more authentic assessment processes, he and the teachers brought back ideas from district workshops.

Kriekard presented an example of the creative assessment that occurred within a three-week unit about the gold rush called "Striking It Rich." In the assessment of learning, students used math to plot gold prices, language to read and write about the poetry of the era, social studies to analyze the cultural phenomenon and implications of the gold rush, and science to explain such things as ore retrieval and mineral extraction. Students either chose which class to apply the credit to or teachers assigned credit in each class.

Curriculum Director Stickney said, "Portfolios are important to integrative education because many of the skills learned in an integrative way are represented in products in which skill applications are embedded." In addition to the use of protocols and rubrics to judge product quality, the portfolio gives teachers and students the opportunity to sit down together and talk about the craftsmanship involved. Sloppy work is not acceptable from anyone, and students come to adopt higher standards for their own work if they are engaged in a concrete dialogue about what constitutes quality.

At Hollywood Elementary, Principal Glaser reports, "We looked at all our practices to see how they were helping or hindering us. We decided that report cards were hindering us, and we needed to look at a new model of

assessment and reporting." She and her colleagues decided that "portfolio assessment removes the ceiling of assessment for young learners. Students are now reaching for goals and achievements they were not previously allowed to because of standardized approaches to teaching and assessment."

Physical Structures for Integrative Education

Glaser had the enviable opportunity to offer input into the shape of the new school building. "It's designed for integrative education," she said. "Our classroom shapes are not traditional. We have six multiage houses, each with three or four classrooms. These classrooms are clustered around an open activity area that students use for working on and displaying their projects. Students remain in the same house throughout primary, so teachers will become very familiar with each student's work and interests before they are actually the student's teacher. Former teachers can stay informed of students' progress and provide encouragement and moral support to students as needed.

This physical arrangement promotes brainstorming and collaboration among teachers and challenges students. When student work is displayed in the common activity area, it acts as a catalyst for new learning and new questions from other students and teachers in the house.

Paying the Piper

This chapter would be incomplete if it failed to recognize the effects of resource scarcity on the move toward integrative education. Eugene Public Schools Curriculum Coordinator Bill Kentta cites decreases in school funding in Oregon as a major barrier to movement toward integrative methods. "Unless you have classroom teachers who have resources and are not burdened with extreme class sizes, expecting them to maintain high standards in their current practice while learning integrative practices can be demoralizing." As an example, Kentta notes, "Substitute teachers cost $120 a day in Eugene. Providing release time for over 1,000 teachers to go observe another classroom or building just isn't realistic." Kentta said, "Our challenge as a district is how best to affect systemic change with modest resources."

Yet creativity and a commitment to personal and professional excellence are perhaps the hallmark of the integrative educator. When discussing budget limitations resulting in larger classes, teacher Bill Stewart said of himself and his teaching partner Nancy Wilson, "We refuse to become discouraged."

Stickney bemoaned her district's inability to secure state grants to help

it implement integrative practices, even though the Oregon Department of Education sent observers to Willamette Primary to learn from their model. "We had to be inventive," stated Stickney. "The literature is a great help. Read it and share. Dedicated teachers make a great investment in their own learning. We might say, 'Let's buy a pizza and talk about assessment,' and we'd meet from 5:00 to 9:00 and work on that."

In his Scottsdale district, Boyer writes federal and state grants to obtain money for teacher inservice and implementation of integrative education. The district also commits $100,000 a year to staff development, and the strategic plan (see chapter 4) ensures that development funds are channeled into helping teachers learn to engage in meaningful integrated instructional processes. Parent councils have been asked to focus their fundraising efforts on staff development in the area of integrative education.

The national conference on integrative practices that Scottsdale hosts provides another source of training funds. The money from out-of-district attendance at the Scottsdale conferences supports the attendance of 300 district staff. Maryland Principal Glaser said,

> The literature has been very helpful to us. And it's free. We also used whatever staff development money we had to send teachers to workshops like those provided by the Society for Developmental Education. This gives teachers enough vision to move ahead on their own, to develop standards and processes that make sense in our building. For example, teachers gather as a staff to develop assessment protocols, so that everyone has input as to which specific things should go into a portfolio and how they might be assessed. We learn from each other in this process.

"A group of our teachers spent their own money to go to Orlando for a conference on integrative education," Glaser added. "Excitement about learning a new, more effective way to educate children promotes the personal and professional development of the teacher."

Chapter 3

Willing Partners

I've got so much to learn.
—Lynda Hardwick, teacher

In this chapter, three teachers share their experiences with integrative education. Lynda Hardwick teaches kindergarten at Laurel Elementary School in Junction City, Oregon. Bill Stewart is a science teacher at Gladstone High in Portland, Oregon. Brett Loucks is also a science teacher—at Eagle's Wing, an alternative school within Hudson's Bay High School in Vancouver, Washington. The three share a desire for something more in education for their students and for themselves—a lifelong journey into learning.

A Primary Without a Primer

Lynda Hardwick counts herself among the lucky few. She came out of preservice training with an up-to-date education in how to teach using integrative methods. But when she started to teach as a substitute in districts around Lane County, the beliefs she had adopted about education were challenged. "I called one of my professors in Corvallis and told him that the rest of the world wasn't teaching the way I had been taught," she said.

"He told me he wasn't surprised by what I had found," said Hardwick, "but he also told me to check out the Junction City School District." She wondered what she would find in a small, rural district that would be different from the very "traditional" classrooms she had substituted in. "He said the district had gotten some grants and was starting to work toward more innovative practices."

Hardwick was pleasantly surprised. "All I needed to do was walk through some of the classrooms and I could tell what the teachers were up to," she said. The simple fact that student work—not worksheets, but open-ended project work—was displayed was enough to tell Hardwick which teachers had begun to engage their students in an integrative process of inquiry.

Hardwick and many of the other teachers at Laurel use the project approach to learning, as promoted by Lilian Katz and Sylvia Chard (1989). While systematic whole-class instruction is still important, it supports the progression of learning and the application and development of skills through projects, rather than being the sole method used to transmit information.

Hardwick guides student learning through three phases. But before any phase begins, the topic of inquiry must be decided upon. This is a crucial part of integrative education, since it addresses the issue of significance.

Topic selection has been a challenge for Hardwick since her move from a first- and second-grade multiage group to a kindergarten classroom. Even though only slightly younger, she found kindergartners to be so unfocused and malleable in their interests that she needed to take a more active role in selection of topics for study. Her first- and second-grade students could identify a topic of interest and maintain their excitement about finding out more about the topic. With kindergartners, Hardwick gets to know her students and informally surveys their interests. What topics commonly enter the daily conversations among students? From the "feel" she develops for the group, she develops her topics.

In the first phase of inquiry, students and teachers collaborate in what Chard calls an "auto ethnography." Hardwick presents no new information, instead trying to draw from the students everything they know, or think they know, about the topic. A teacher with more traditional ideas about teaching might rush through this first phase, thinking that the real job of education begins only when the teacher brings in new information.

Not so for Hardwick. "The things you find out about how your students think are just amazing when you give this phase time to really develop. You get a greatly enhanced understanding of the students' world view, and this makes all the difference in meeting them with developmentally appropriate practices." Another benefit is that students have the benefit of actively struggling to develop their own understanding rather than passively relying on a teacher to tell them "the way things really are."

Hardwick's students worked on setting up a pet shop. In the first phase of the inquiry, "the kids had the hardest time figuring out what was missing from their shop," said Hardwick. "I wasn't about to tell them their shop had no pets." Once they figured that out, discussions ensued about what kind of animals qualified as pets. The students argued about whether pets had to be

furry, or if insects could be pets. By the time the group moved to phase two, the "auto ethnography" was very complete. Both teacher and students knew the ins and outs of the students' working model of "pet shop."

Phase two of Hardwick's process is the active research phase. The resources available to Hardwick and her classroom are only as limited as her imagination. There's the traditional classroom fare of books and films. Then there are field trips on which students actively gather information. In addition to being led on a traditional school tour of a pet shop, for example, students might interview the shop owner and gather data about the number and kinds of pets at the store and the nature of the rest of the store merchandise. Both in the classroom and in the school at large, students might complete surveys about pet ownership. Guest speakers come into the classroom to talk about their experience and answer the students' questions.

Finally, in the third phase, students synthesize their experiences in writing, drawings, graphs, and other creations. They draw conclusions from their data, and share these with other students in their own and other classrooms. Usually, there is a culminating event, in which parents, staff, and students join to celebrate the fruits of the students' research and activities.

What has been most helpful to Hardwick in implementing an effective integrative curriculum? "More than anything else," she said, "it's knowing that I work with a principal who will let me take risks and who understands what I'm doing and will support and encourage me, even defend me if I fail."

Excitement virtually spills from Hardwick as she talks about the growth she has seen in her students as a result of her integrative methods. It's easy to see how other teachers and parents, as well as students, are motivated by Hardwick's self-directed dedication to lifelong learning. Her eyes gleam when she says, "I've got so much to learn. I want more!"

Along with her colleagues, Hardwick is now preparing to ask the principal to support the formation of a cluster of K-1-2 student groups among a team of teachers. If Hardwick wants more, chances are that she, and her students, will get it.

A Philosophy of Care

Gladstone High's Bill Stewart and Nancy Wilson collaborate with each other in their quest for integrative practices. He teaches science and she English. "We work on the Random Weave Model," said Stewart. "Certain things we can work together and reinforce each other on, and other things seem mutually exclusive. Biochemistry, for example, doesn't seem to cross over with English."

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period. One day thirty of the students will have English with Wilson during first period and the next day those students will have science with Stewart, and vice versa for the other thirty. Students stay in this alternate day science/ English pattern unless all sixty students gather together in the auditorium.

Science and English seem to deal with such disparate subject matter; how do the two teachers bring them together? When all sixty students gather in the auditorium, what could they possibly do that would pertain to both disciplines?

Stewart provided an example: "When I'm teaching extinction and adaptation in science, Nancy will be using *Jurassic Park* as her class literature. We manage to find lots of places where we can complement each other. It's important to know reading and language skills in science and vice versa." Students sometimes enter writing contests with science essays that have been polished with the help of both teachers.

Stewart offers another example of the two teachers' integrative activities. "When kids go on 'job shadows' that have to do in some way with the field of science, Nancy can work with them in English class on the interviewing process, while I work with them on the content of the questions they'll ask."

The "random weave" practiced by Stewart and Wilson helps kids see the significance of the things they are learning, how things are related. Seeing how connections can happen in one or two areas helps them learn how to make their own connections in other areas.

Students benefit in other ways from the teachers' collaboration. "Two minds from different perspectives can come up with more solutions and options than one mind from one perspective," said Stewart. "My teaching has definitely gotten better because of our collaboration. I've tried some new things first in the integrative situation that I've carried over into my less integrated classes because I know I have Nancy's support. I also feel I can pilot some things with my first-period kids because I have them all year long, and I know them well enough to be able to take some reasonable chances with them."

Stewart believes his work in the integrative setting has made his teaching less traditional. Although he has never relied heavily on systematic whole-class instruction, he does even less of that now. He gets students more involved in project work and encourages performances by students. The last quarter of the year is almost entirely project-oriented. While Stewart still gives rigorous standardized tests, his assessment includes the use of rubrics and performance indicators for product evaluations.

Stewart and Wilson sometimes assess the same products—such as science essays—but will also assess different products using the same processes. When all sixty students gather in the auditorium, it is often for the

presentation by students of skits or speeches that Stewart and Wilson both assess.

Stewart said some of his colleagues resist getting involved in interdisciplinary collaboration because it could mean relinquishing control of their curriculum. That hasn't happened to him. "Nancy and I have agreed not to let our collaboration dilute the quality of our disciplines," said Stewart. The benefits of throwing some interdisciplinary light on a subject far outweigh the dangers of dilution. "When kids see the connection between two seemingly unrelated areas, and have two teachers who really care about them, it's amazing what can happen."

Stewart credits Wilson with coming up with the phrase "a philosophy of care" as descriptive of one of the most important aspects of their collaboration. It seems to make a big difference to students, who often return to their integrative class as volunteer aides. "We are with the kids for a whole year, so we really get to know them, their interests, and their capabilities," Stewart said. "We have time to do some things with them that we otherwise wouldn't. Nancy and I reinforce each other with the kids. We're consistent in wanting academic standards and also wanting the student to be a good person and act reasonably."

Parents love it, too. Many tell Stewart their children have never worked harder, yet the students still like the class. Stewart and Wilson meet with parents every nine weeks for a conference about students' work.

Stewart cites funding cuts and the growth in class size as factors making it harder to collaborate on integrative practices. He has 40 percent more students in his classes today than he had three years ago. This has also made it more difficult for interdisciplinary collaboration on integrative education to become more widespread at Gladstone, as Stewart had hoped it would. Although he has to do more work to maintain his collaboration with Wilson, teaching more kids and grading more papers, Stewart has no desire to give it up. He focuses on the benefits rather than the problems. "We are choosing not to be discouraged," he said.

Flying the Coop on Eagle's Wing

Brett Loucks is a science teacher, too, but one whose desire for "something more" led him to leave the confines of the traditional high school and become involved in an alternative setting that offers students a very different educational structure.

Eagle's Wing was formed by a group of educators, whom Loucks joined for early morning meetings to conceive a radically different school. The push to restructure education in the state of Washington enabled Eagle's

Wing to be declared a "lab" school that qualified for waivers from the state, freeing teachers at the school from "seat time" requirements. The principal endorsed the Eagle's Wing concept, and Loucks and colleagues secured the support of a majority of other teachers to open their alternative at Hudson's Bay High.

Loucks' journey into education began when he was working as a chemical engineer in industry. He noticed that people would come to work with their degrees in hand and their theories. "As long as everything went as planned, most people would do fine. But when something went wrong, there seemed to be an amazing inability to do practical application or problem-solving," said Loucks. "It was as if there had been no transference of learning from the carefully controlled school lab situation to the real world."

Once in the classroom, Loucks did what he could to maximize student learning, to push for "transferability." Finally, he came to believe there was nothing else he could do to improve his work within the confines of the traditional classroom. "The biggest concern in traditional schools is governance," said Loucks. "If you have kids under control, you can skate by even if they aren't learning much. Because of the control exerted in regular classrooms, there is a surface appearance of productivity."

At Eagle's Wing, it's obvious when students are engaged in learning and when they're not. The lack of a mandatory structure and arbitrary seat-time requirements means that students not at work might be talking about nonrelated topics or just standing around in the halls.

Student Self-Government

Loucks and his colleagues at Eagle's Wing sometimes have to step back from the cutting edge when students don't seem up to the task. Loucks points to self-governance as an example of this. Although initially students were placed in control of school governance, their involvement declined and teachers needed to put some structures in place. This year, however, Loucks said a group of students "who you never would have suspected formed the 'recruit group,' and took it upon themselves to tackle problems of student governance and productivity."

This is the kind of response that Loucks hopes for and seeks to provoke. At times, he wonders "whether what we're doing is working. Maybe we're asking students to leap too far." The way younger students are taught may need to change in order for them to benefit from a school like Eagle's Wing. Still, Loucks is convinced that Eagle's Wing addresses many of the changes that need to happen in education.

"As long as we take control of student motivation," said Loucks, "thinking that we can sort of flip open the top of students' heads and pour

information into them, we will fail. We have to provide an environment where students learn that they are rightfully in control of their learning, where they are supported when they say, 'I am seeking something.' Learning happens best when it is relevant, when it comes from what the students are and what they're interested in. When a student comes seeking, we can't say, 'Sorry, this is the ninth grade and you have *this* to study, *just like everybody else in the ninth grade*'."

Core Classes, Seminars, and Workshops

There are three arenas at Eagle's Wing in which students can seek the information they need to complete projects that are *meaningful* to them. First, there are the "hubs," two integrated cores of study, one in English, social studies, and the humanities, and the other in science, math, and health. Even in the hubs, learning is tied as much as possible to student projects. And there is considerable integration between as well as within hubs. "We do a lot of science in the humanities," said Loucks. "When students are defending projects that might be focused on social studies, for example, we want to know if they can support their claims statistically. What was their sample size? Did they use the chi square, or some other statistical test, and why?"

Second, teachers, and sometimes students, offer seminars on topics requested by students. "Navigating the Internet" or "writing" are examples of student seminar requests.

Finally, skill-building workshops are offered—one shot, limited affairs that teach things like how to develop black-and-white film. Students must demonstrate that the skill will be used within the context of their projects. Loucks notes that students also do a lot of off-campus learning by volunteering, performing public service, and participating in job shadowing opportunities. For attending hub classes, seminars, and workshops, students earn coupons that can be exchanged for credit after their project has been successfully completed and "defended."

The projects spring from student interests, but there is a process in which students work with a subject-area specialist to develop their proposals and plans. Students also have advisors who track what they are doing. How are they deciding on projects, and are their projects really developing them? If a student grew up on a dairy farm, exploring the workings of a dairy farm would not be a project the student's advisor would encourage, since the student probably already possesses considerable knowledge in this area.

Students approach various subject-area specialists to make their case for credit in that area. For example, if a student project includes creating a scale model of something, the student would ask the math specialist for credit. One project could conceivably result in credit in every possible subject area.

Before credit is actually awarded, students have to successfully present and defend their projects before students and teachers. "They answer questions like, What have you learned?" said Loucks. "How much do you think you learned in a particular subject area? What problem-solving skills did you develop? What about this project is high quality? What are you most proud of?" Students' peers complete evaluation forms about each presentation and teachers award the project an "A," "B," or "Revise." Credit is given only for high-quality work.

Loucks is convinced that students need to be deeply understood if teachers are to be able to engage their curiosity and teach them to be productive in the realms and modes to which they are naturally inclined. "This means doing more than allowing freedom of choice, more than simply giving opportunities," said Loucks "For example, we had a student who didn't earn credits for two years. He would try to write papers and never be able to finish. He would sit in seminars, but couldn't produce anything. Turns out that the mode of action that came naturally to this student was to demonstrate, to form, to craft. He needed a hands-on project where he would build something. He needed to *texturize*."

The student's first completed project was to install a stereo in his dad's car. Then he melted down his dad's old dental work into a ring for a girlfriend. He was paired with peers who had different strengths, who would, for example, write a paper about the crafting process described by the student.

To help teachers understand students and students to understand themselves, Loucks and colleagues use the Kolbe Conative Index to ferret out which problem-solving mode is most natural to an individual. Loucks says this instrument is commonly used in the business world, but as far as he knows, its use in education is unique to Eagle's Wing.

There is much about Eagle's Wing that is unique. But in all three settings that have been examined in this chapter, teachers have been willing to risk, to "go outside the box" in search of integrative practices. Leaders in their own right, these teachers might advise the administrators on whom they rely for support to lead, or at least, don't get in the way of, teachers who insist on adopting integrative practices.

Chapter 4

Policy Implications

District administrators who wish to write policy concerning integrative education will truly be leaders. The National School Boards Association offers no samples of policy on integrative education or integrated curriculum. The American Association of School Administrators has adopted no position statement on the matter. The National Association of Secondary School Principals and the National Association of Elementary School Principals remain neutral on the topic, as does the Confederation of Oregon School Administrators. Even the National Education Association has no formal position in regard to integrative education.

However, the National Middle School Association published a position paper called *This We Believe*. Approved by the Association's Board of Trustees in September 1995, the statement declares that developmentally responsive middle schools provide, among other things, "curriculum that is challenging, integrative, and exploratory." The paper goes on to say, "Curriculum is integrative when it helps students make sense out of their life experiences. This requires curriculum that is itself coherent, that helps students connect school experiences to their daily lives outside the school, and that encourages them to reflect on the totality of their experiences" (NMSA 1995).

Some school districts have adopted a position regarding integrative education. The Eugene Public Schools has completed improvement recommendations for its elementary and middle schools based on research and discussions with teachers, administrators, classified staff, parents, patrons, and students. The report suggests that middle schools develop a vision and implementation plan consistent with its recommendations. The top two recommendations regarding curriculum are as follows:

- Teachers provide instruction that is student-centered and developmentally appropriate.

- Teachers use integrative instructional approaches. (Eugene Public Schools 1994)

Those who shaped that report emphasized that it contains recommendations, not mandates.

> In crafting the phrasing for each of our recommendations, our committee made a conscious and deliberate decision to avoid the use of "should" or "will," choosing instead to describe our vision in terms of what actually happens in an idealized middle school. More than that, we recognize that using words like "should" or "will" at a time of financial difficulty would be frustrating to school communities struggling with increased class sizes and decreased resources. (Eugene Public Schools 1994)

In contrast, the Scottsdale School District in Arizona takes an approach that seems to incorporate the belief, "Where there's a will, there's a way." The district includes integrative-education practices in its strategic plan:

> **OBJECTIVE 8.** By June 1996, all teachers and students will be engaged in meaningful integrated instructional processes which model and facilitate the District mission and strategic plan.
>
> **Strategy 8.1.** We will establish the guidelines and definitions for meaningful and integrated instructional approaches.
>
> **Strategy 8.2.** We will establish a professional development plan and evaluation procedures which will ensure all staff will have mastered the elements of Objective #8.
>
> **Strategy 8.3.** We will include elements of the Strategic Plan, including evidence of student progress and meaningful curriculum integration, in the certificated evaluation process. (Scottsdale Public Schools 1995)

John Kriekard, a principal in the Scottsdale District, said the positioning of goals of integrative practice in the strategic plan provides a valuable push for teachers and administrators. Kriekard ties his school's structural changes in support of integrative education to the school-improvement plan, which is in turn linked to the district strategic plan. "People need to see the larger picture," said Kriekard, "to understand and remember why we're doing what we're doing."

The districtwide "will" to make integrative education a reality translates into support for teachers who are excited about moving ahead. It positions them as leaders who can serve as examples and share their successes to help others move in the expected direction. The district mandate also serves to some degree to protect innovative educators from the drag of reluctant teachers who might, if given the choice, reject the move toward integrative practices and its implications for all staff.

An example in Oregon of a districtwide policy concerning integrative education is the West Linn-Wilsonville School District's *Primary Curriculum Framework.* All primary curriculum in the district is guided by this document, which places inquiry investigation at the core of its instructional processes. Three broad goals are consistent throughout the elementary school years, though conceptual themes change as children develop.

> *Goal 1*: The child will develop conceptual understanding in the following broad-based themes through first hand investigations and inquiry in a variety of fields (perspectives) that represent different ways of knowing about topics that draw out children's experience, interest and questions.
>
> *Goal 2*: The child will develop habits of mind that support learning for life.
>
> *Goal 3*: The child will develop ways of gathering information and shaping meaning that will facilitate the ability to go where questions lead. (West Linn-Wilsonville School District, 1994)

Table 1 contains an excerpt from the curriculum framework for goal 1 for ages five to seven.This excerpt lists the conceptual themes, perspectives, and examples pertaining to the integration of language arts and literacy with social and scientific concepts.

Undoubtedly other districts in America have already adopted policies concerning integrative education. Such policies will certainly evolve and be revised as states make decisions about student evaluation and as district leaders experiment with policy and its effects on teacher practice. It is probably unwise to allow uncertainty to prevent the development of school policy about the matter. Policy-makers might do well to follow the lead of teacher Lynda Hardwick, who possesses a willingness to risk coupled with a humble openness to experience. *We've got so much to learn.*

Table 1
West Linn-Wilsonville School District's
Primary Curriculum Framework (Goal 1, Ages 5-7)

An Integration of Language Arts and Literacy with Social and Scientific Concepts

Conceptual Themes and Development	*Perspectives*	*Topic Examples*
OURSELVES AND OUR WORLD		
Humans and the evironment are interrelated. One's experience fits within a large scheme. Similarities and differences exist. Each of us can influence the world.	Psychology Cultural Studies Environmental Science Health	Friendship Homes Families Senses
ATTRIBUTES AND PATTERNS		
Patterns are organizational structures. Everything can be defined/described by attributes. Patterns can be recorded in various ways. Patterns and cycles are influenced by changes. Similar patterns can be found in diverse situations.	Sociology Geography Environment Geology Physical Science Life Science	Personal attributes Environmental pattern
INVESTIGATIONS AND CHANGE		
Rules of evidence support inquiry. Change is ongoing. Some information is relevant/irrelevant to an investigation. There is a relationship among purpose, tools, and processes. There is a relationship among experience, ways of recording information, and making meaning. There are diverse perspectives. Past events influence the present and future.	History Physical Science Environmental Science Life Science	Ponds/rivers/wetlands Minibeasts Magnification Pioneers

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Conclusion

People like those featured in this Bulletin are making contributions to the theory and practice of integrative education. Supported by the pure research of cognitive neuroscience and the action research of teachers and administrators, integrative educators are moving ahead in spite of formidable cultural inertia. Perhaps this is because of the promise that integrative education holds for all.

Administrators seeking to restructure schools for more effective learning can look to integrative methods as a catalyst for change. Integrative education reverberates through the school system, aligning practices to support the most effective teaching.

Teachers seeking to help students develop into creative thinkers and active learners can find in integrative education the key to students' minds and motivations. Integrative practices are anathema to boredom in the classroom. The curriculum evolves with each new student. Personal and professional development is assured by the pursuit of excellence through integrative activities.

Students are the biggest winners. School begins to make sense. Behavioral problems are fewer, so everyone feels safer and learning becomes focal. Freed from the confines of a curriculum developed for everyone and no one in particular, students recognize their intrinsic worth and power. Self-esteem is a byproduct of self-directed productivity.

Integrative education as a concept has been around for a long time, but its practice has been relatively rare. That seems to be changing. With the amount of literature that has come out about integrative education in the past ten years, today it is uncommon to find a teacher who hasn't encountered at least its surface tenets. Still, the question remains, Will those deeply practicing integrative education reach a critical mass and energize education in the twenty-first century?

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